

CLAIMS

1. A photodetector comprising:

a substrate;

5 a photodetecting element array, having a plurality of photodetecting elements formed in a predetermined array on the substrate;

10 a light entrance portion, being used to make light, to be detected by the photodetecting elements, enter and including an opening formed in the substrate in a predetermined positional relationship with respect to the photodetecting element array; and

a carrier capturing portion, being disposed between the photodetecting element array and the light entrance portion, capturing carriers generated when light is illuminated onto a substrate portion near the light entrance portion, and removing the carriers to the exterior.

15 2. The photodetector according to Claim 1, wherein

the substrate has a first conductive type substrate and a second conductive type epitaxial layer, formed on the first conductive type substrate, and has channel regions, functioning as the photodetecting elements, formed in the epitaxial layer, and

20 the carrier capturing portion is arranged from a layer portion of the second conductive type epitaxial layer that is located between the photodetecting element array and the light entrance portion.

25 3. The photodetector according to Claim 1, wherein

the substrate has a first conductive type substrate and a second conductive type well region, formed in the first conductive type substrate, and has channel regions, functioning as the photodetecting

elements, formed in the well region, and

the carrier capturing portion is arranged from a region portion of the second conductive type well region that is located between the photodetecting element array and the light entrance portion.

5 4. The photodetector according to Claim 1, wherein

the substrate has a first conductive type substrate, has channel regions, functioning as the photodetecting elements, formed in the first conductive type substrate, and has a dummy channel region in a substrate portion of the first conductive type substrate that is located 10 between the photodetecting element array and the light entrance portion, and

the carrier capturing portion is arranged from the dummy channel region.

15 5. The photodetector according to any one of Claims 1 to 4, wherein

an electrode for removing the captured carriers to the exterior is connected to the carrier capturing portion.

6. A spectrometer comprising:

the photodetector according to any one of Claims 1 to 5; and

20 a spectroscopic optical system, including a dispersive element positioned with respect to the photodetector at a predetermined position along an optical path from the light entrance portion to the photodetecting element array; and

25 wherein light entering from the light entrance portion is spectrally separated by the dispersive element and the spectral components obtained are detected by each of the plurality of

photodetecting elements of the photodetecting element array.